150

Graphical User Interface

Application Specification 100

Categories	Please Select One or More
Word Processing	O
Palm-Top Organizer	O
Calendar Program	O
Web Browser	O
Communications Package	O
Voice Recognition	O
Spread Sheet	O

Performance/Power Levels Specification 102

Categories	Please Select One
Maximum performance	O
Standard Performance -- High End	O
Standard Performance -- Low End	O
Maximum Battery Life	O

Fig. 1A

Graphical User Interface

150

Application Specification 100

Categories	Please Select One or More
Word Processing	O
Palm-Top Organizer	O
Calendar Program	O
Web Browser	O
Communications Package	O
Voice Recognition	O
Spread Sheet	O

Performance/Power Levels Specification 102

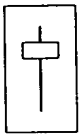
Categories	Please Adjust Slider
Maximum performance	
Standard Performance -- High End	
Standard Performance -- Low End	
Maximum Battery Life	

FIG. 1B

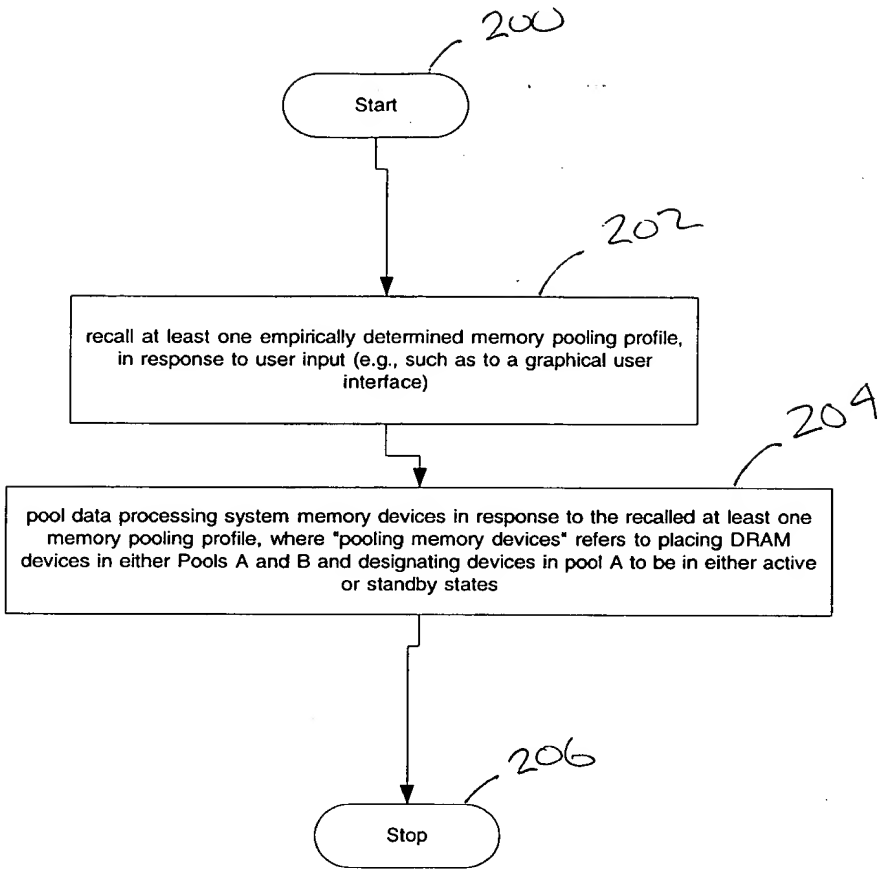

200
Start
202
recall at least one empirically determined memory pooling profile, in response to user input (e.g., such as to a graphical user interface)
204
pool data processing system memory devices in response to the recalled at least one memory pooling profile, where "pooling memory devices" refers to placing DRAM devices in either Pools A and B and designating devices in pool A to be in either active or standby states
206
Stop

FIG. 2

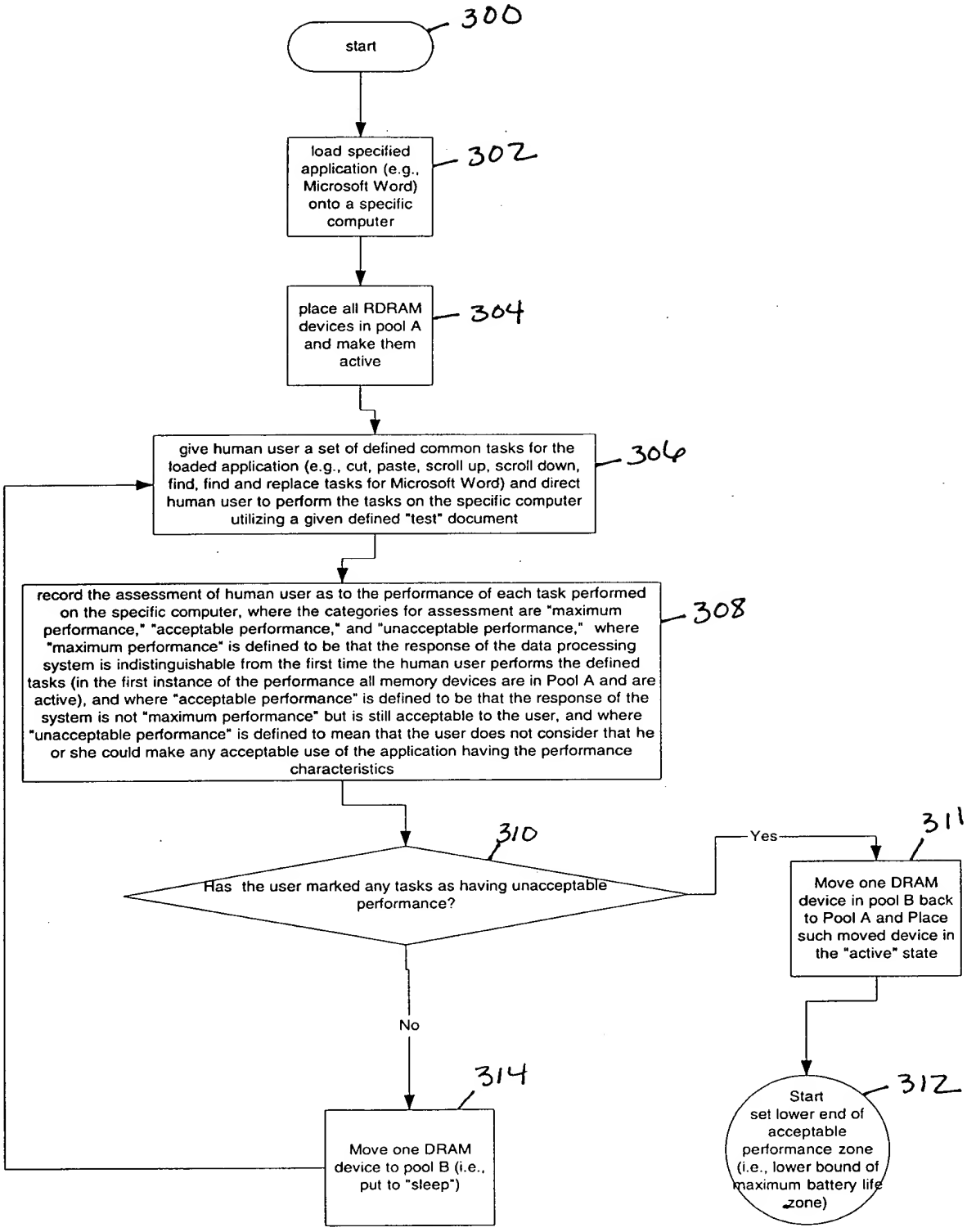

300
start
302
load specified application (e.g., Microsoft Word) onto a specific computer
304
place all RDRAM devices in pool A and make them active
306
give human user a set of defined common tasks for the loaded application (e.g., cut, paste, scroll up, scroll down, find, find and replace tasks for Microsoft Word) and direct human user to perform the tasks on the specific computer utilizing a given defined "test" document
308
record the assessment of human user as to the performance of each task performed on the specific computer, where the categories for assessment are "maximum performance," "acceptable performance," and "unacceptable performance," where "maximum performance" is defined to be that the response of the data processing system is indistinguishable from the first time the human user performs the defined tasks (in the first instance of the performance all memory devices are in Pool A and are active), and where "acceptable performance" is defined to be that the response of the system is not "maximum performance" but is still acceptable to the user, and where "unacceptable performance" is defined to mean that the user does not consider that he or she could make any acceptable use of the application having the performance characteristics
310
Has the user marked any tasks as having unacceptable performance?
Yes
311
Move one DRAM device in pool B back to Pool A and Place such moved device in the "active" state
No
314
Move one DRAM device to pool B (i.e., put to "sleep")
312
Start
set lower end of acceptable performance zone (i.e., lower bound of maximum battery life zone)

FIG. 3

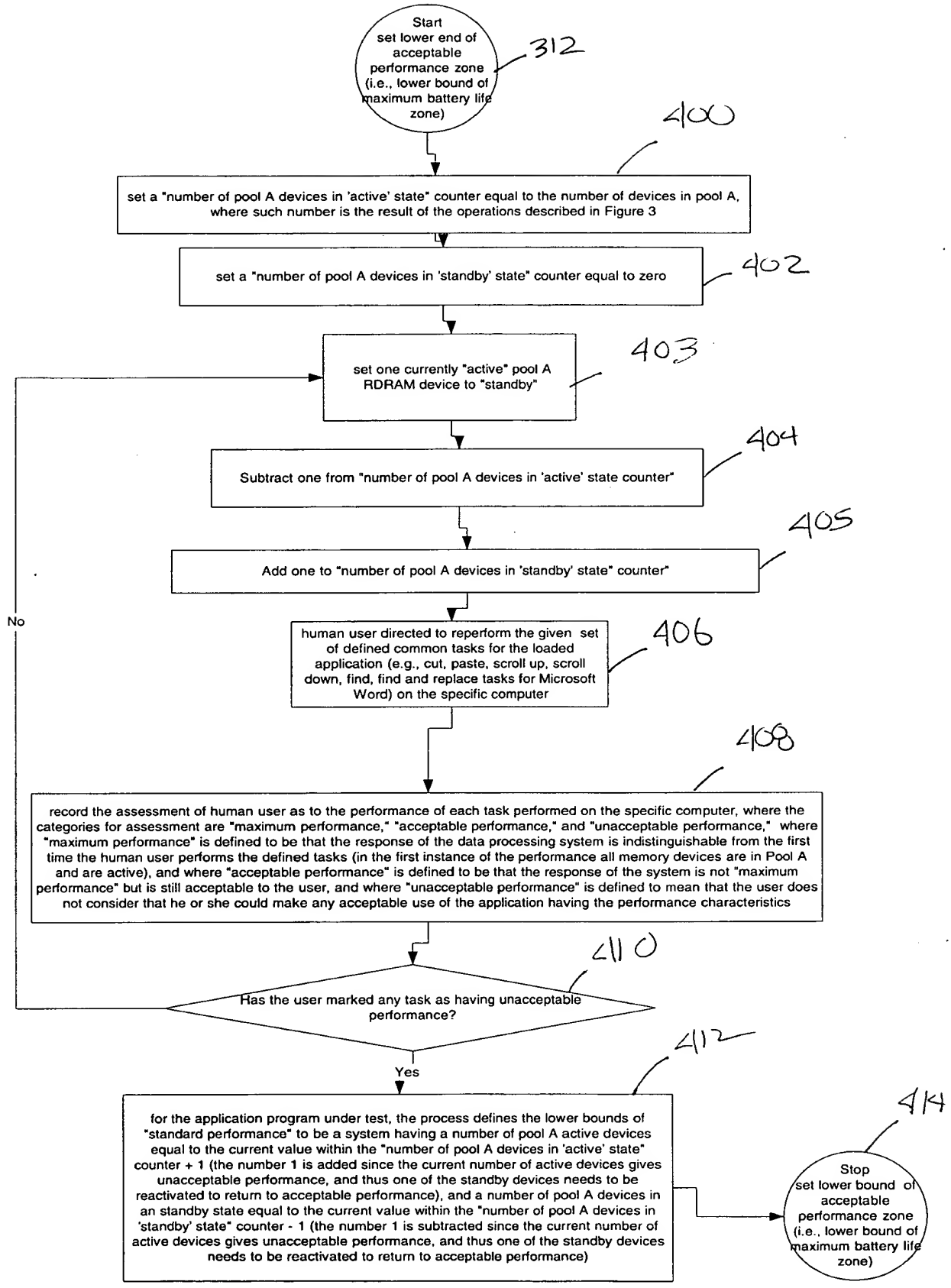

Start
set lower end of acceptable performance zone (i.e., lower bound of maximum battery life zone)
312
400
set a "number of pool A devices in 'active' state" counter equal to the number of devices in pool A, where such number is the result of the operations described in Figure 3
402
set a "number of pool A devices in 'standby' state" counter equal to zero
403
set one currently "active" pool A RDRAM device to "standby"
404
Subtract one from "number of pool A devices in 'active' state counter"
405
Add one to "number of pool A devices in 'standby' state" counter"
No
406
human user directed to reperform the given set of defined common tasks for the loaded application (e.g., cut, paste, scroll up, scroll down, find, find and replace tasks for Microsoft Word) on the specific computer
408
record the assessment of human user as to the performance of each task performed on the specific computer, where the categories for assessment are "maximum performance," "acceptable performance," and "unacceptable performance," where "maximum performance" is defined to be that the response of the data processing system is indistinguishable from the first time the human user performs the defined tasks (in the first instance of the performance all memory devices are in Pool A and are active), and where "acceptable performance" is defined to be that the response of the system is not "maximum performance" but is still acceptable to the user, and where "unacceptable performance" is defined to mean that the user does not consider that he or she could make any acceptable use of the application having the performance characteristics
410
Has the user marked any task as having unacceptable performance?
Yes
412
for the application program under test, the process defines the lower bounds of "standard performance" to be a system having a number of pool A active devices equal to the current value within the "number of pool A devices in 'active' state" counter + 1 (the number 1 is added since the current number of active devices gives unacceptable performance, and thus one of the standby devices needs to be reactivated to return to acceptable performance), and a number of pool A devices in an standby state equal to the current value within the "number of pool A devices in 'standby' state" counter - 1 (the number 1 is subtracted since the current number of active devices gives unacceptable performance, and thus one of the standby devices needs to be reactivated to return to acceptable performance)
414
Stop
set lower bound of acceptable performance zone (i.e., lower bound of maximum battery life zone)

FIG. 4

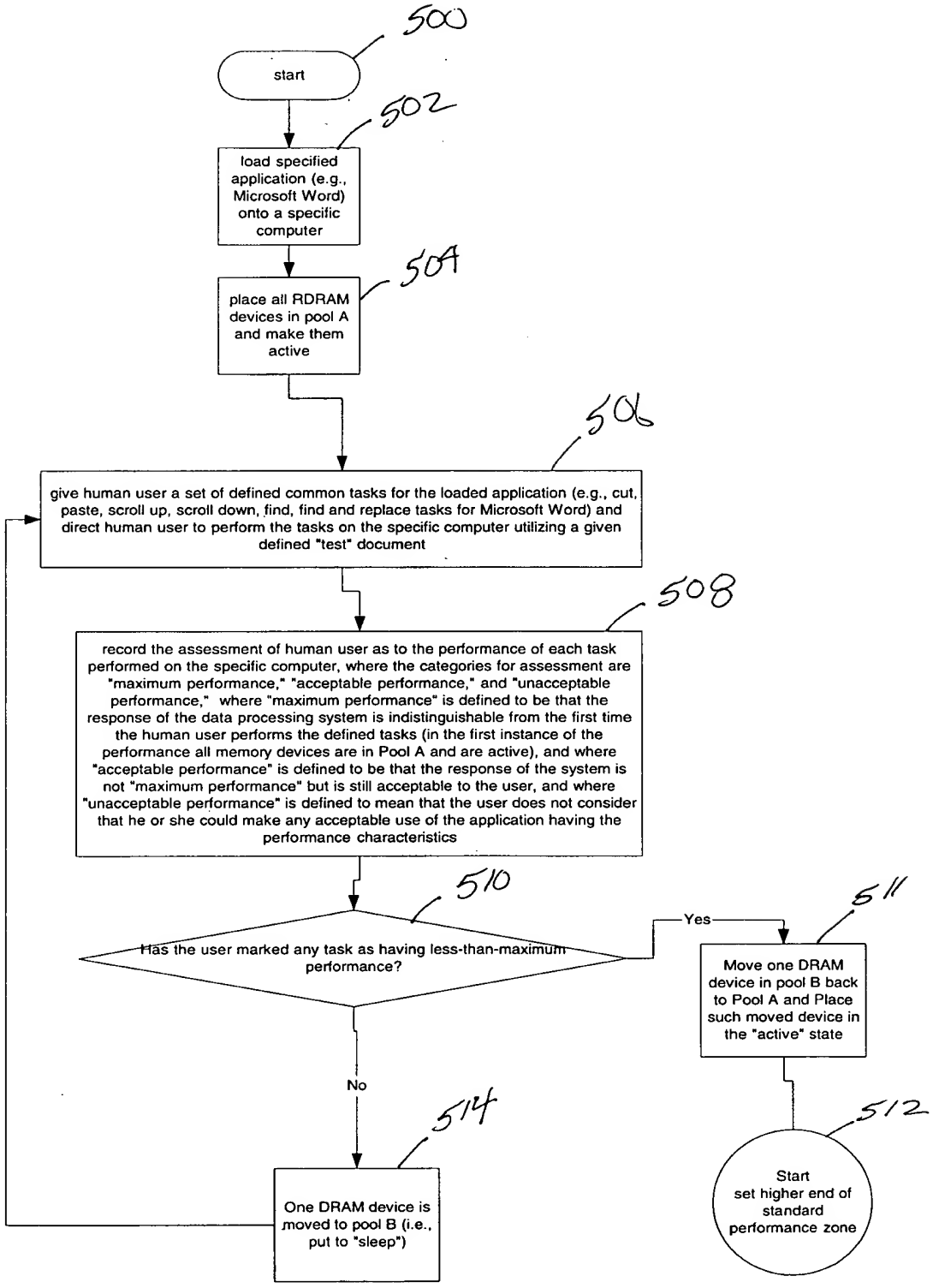

500
start
502
load specified application (e.g., Microsoft Word) onto a specific computer
504
place all RDRAM devices in pool A and make them active
506
give human user a set of defined common tasks for the loaded application (e.g., cut, paste, scroll up, scroll down, find, find and replace tasks for Microsoft Word) and direct human user to perform the tasks on the specific computer utilizing a given defined "test" document
508
record the assessment of human user as to the performance of each task performed on the specific computer, where the categories for assessment are "maximum performance," "acceptable performance," and "unacceptable performance," where "maximum performance" is defined to be that the response of the data processing system is indistinguishable from the first time the human user performs the defined tasks (in the first instance of the performance all memory devices are in Pool A and are active), and where "acceptable performance" is defined to be that the response of the system is not "maximum performance" but is still acceptable to the user, and where "unacceptable performance" is defined to mean that the user does not consider that he or she could make any acceptable use of the application having the performance characteristics
510
Has the user marked any task as having less-than-maximum performance?
Yes
511
Move one DRAM device in pool B back to Pool A and Place such moved device in the "active" state
512
Start set higher end of standard performance zone
No
514
One DRAM device is moved to pool B (i.e., put to "sleep")

FIG. 5

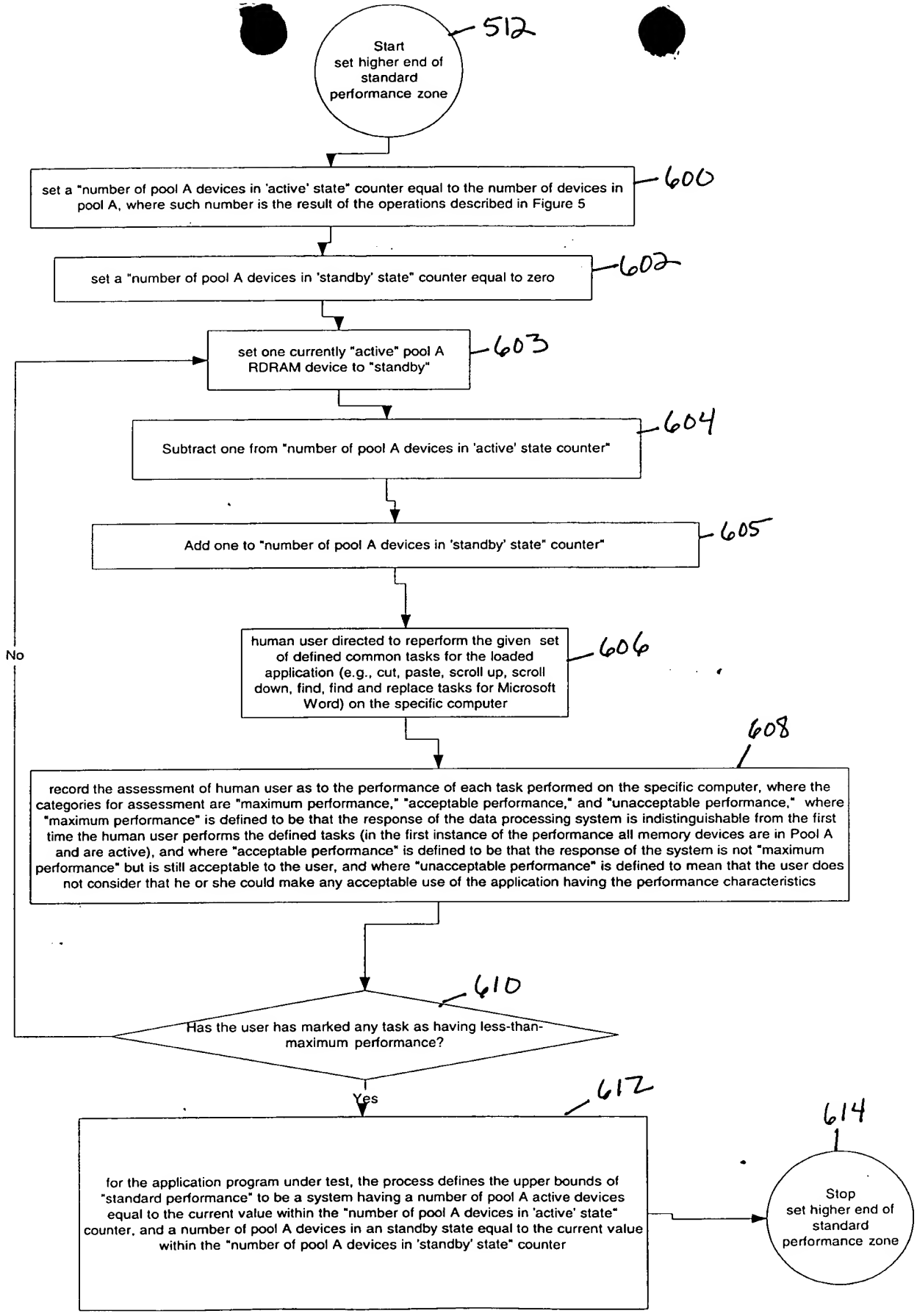

Start
set higher end of standard performance zone
512
set a "number of pool A devices in 'active' state" counter equal to the number of devices in pool A, where such number is the result of the operations described in Figure 5
600
set a "number of pool A devices in 'standby' state" counter equal to zero
602
set one currently "active" pool A RDRAM device to "standby"
603
Subtract one from "number of pool A devices in 'active' state counter"
604
Add one to "number of pool A devices in 'standby' state" counter"
605
human user directed to reperform the given set of defined common tasks for the loaded application (e.g., cut, paste, scroll up, scroll down, find, find and replace tasks for Microsoft Word) on the specific computer
606
No
608
record the assessment of human user as to the performance of each task performed on the specific computer, where the categories for assessment are "maximum performance," "acceptable performance," and "unacceptable performance," where "maximum performance" is defined to be that the response of the data processing system is indistinguishable from the first time the human user performs the defined tasks (in the first instance of the performance all memory devices are in Pool A and are active), and where "acceptable performance" is defined to be that the response of the system is not "maximum performance" but is still acceptable to the user, and where "unacceptable performance" is defined to mean that the user does not consider that he or she could make any acceptable use of the application having the performance characteristics
610
Has the user has marked any task as having less-than-maximum performance?
Yes
612
for the application program under test, the process defines the upper bounds of "standard performance" to be a system having a number of pool A active devices equal to the current value within the "number of pool A devices in 'active' state" counter, and a number of pool A devices in an standby state equal to the current value within the "number of pool A devices in 'standby' state" counter
614
Stop
set higher end of standard performance zone

FIG. 6

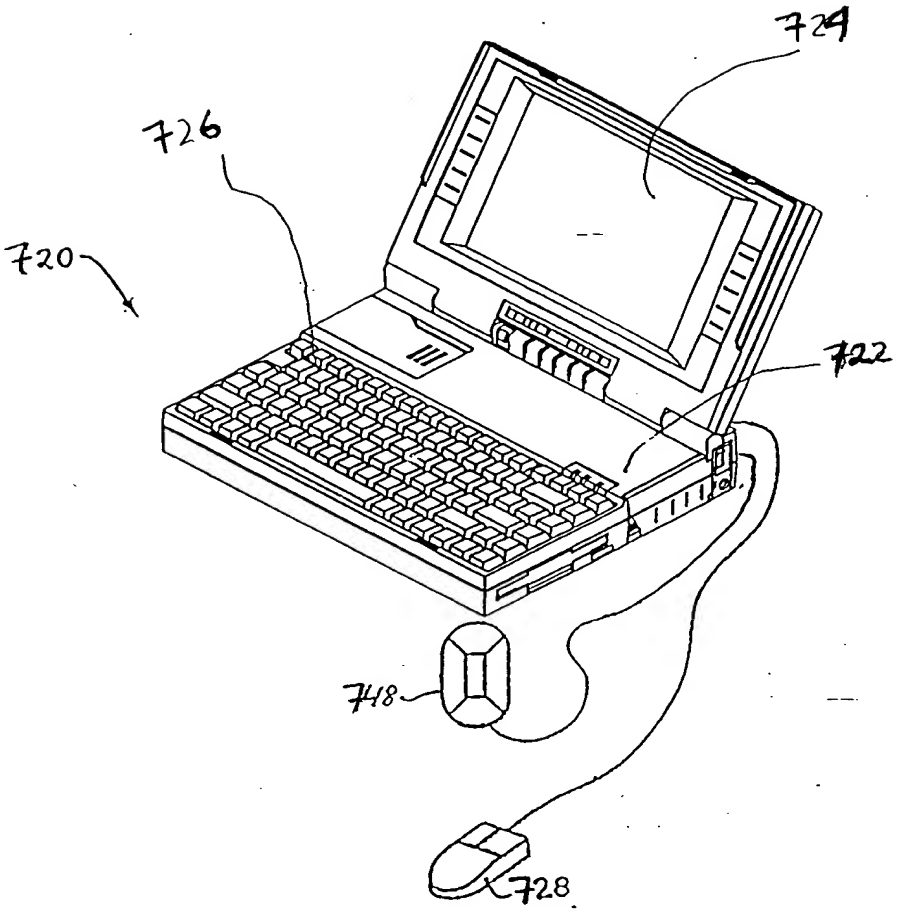
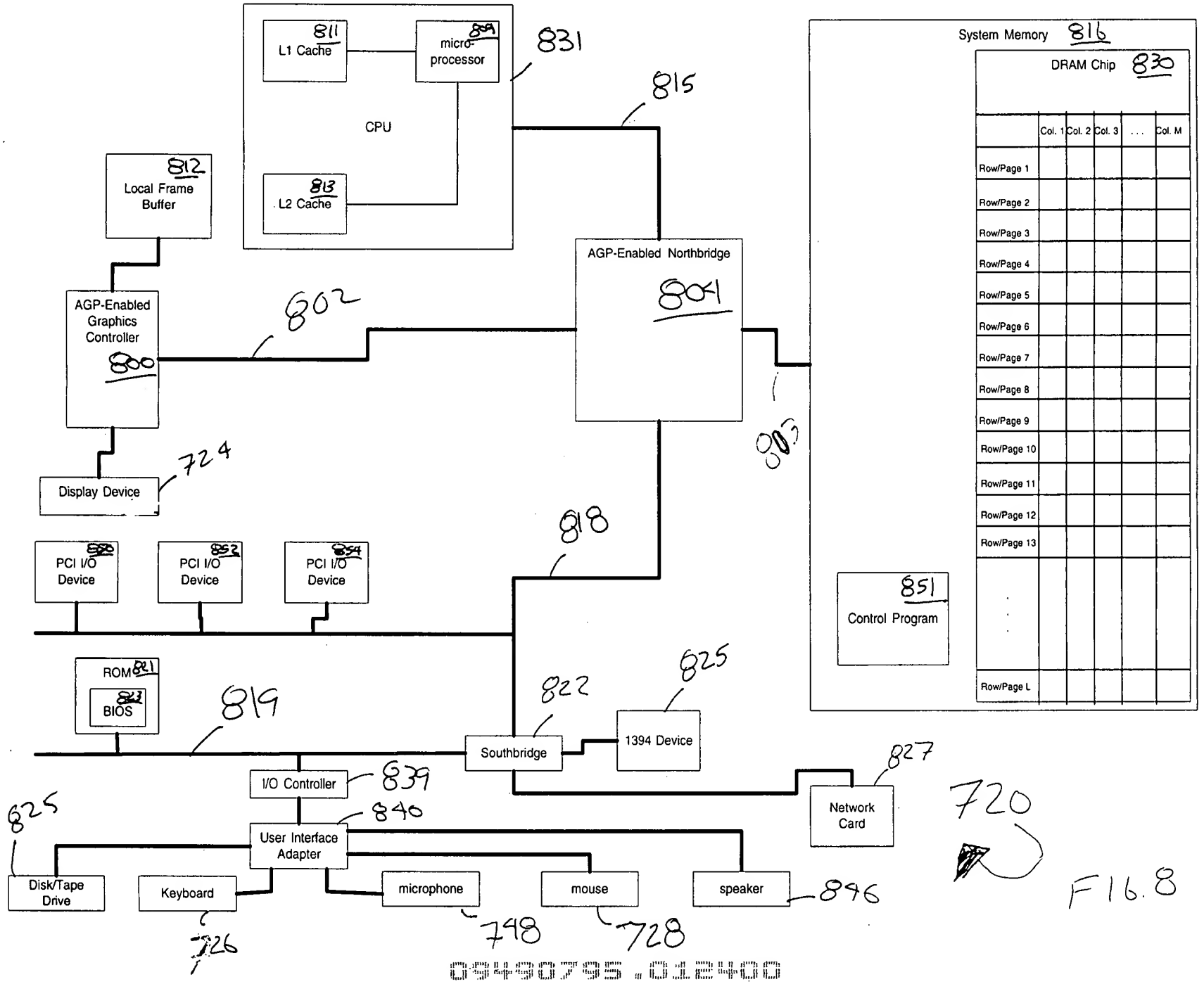


FIG 7


811
L1 Cache
micro-processor
831
CPU
815
812
Local Frame Buffer
813
L2 Cache
AGP-Enabled Northbridge
804
802
AGP-Enabled Graphics Controller
800
803
724
Display Device
818
PCI I/O Device
PCI I/O Device
PCI I/O Device
ROM
821
BIOS
819
822
825
Southbridge
1394 Device
827
I/O Controller
839
840
User Interface Adapter
Network Card
720
Disk/Tape Drive
Keyboard
726
microphone
748
mouse
728
speaker
846
System Memory 816
DRAM Chip 830
Col. 1
Col. 2
Col. 3
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Col. M
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851
Control Program

F16.8